

### REMARKS

Claims 1-35 are pending in the application. Claim 28 is amended to be in independent form. Based on the examiner's express indication that claim 28 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form as set forth on the "Office Action Summary Sheet" and page 2, paragraph 3 of the Office action, and because the Office action failed to provide a detailed basis for any rejection of claim 28, applicants assume that the indication of claim 28 as obvious over Kobayashi et al., U.S. Patent No. 5,533,413 ("Kobayashi et al.") in view of Beaverstock et al., U.S. Patent No. 5,134,574 ("Beaverstock et al.") as set forth on page 3, paragraph 7 of the Office action is an oversight. Thus, applicants submit that claim 28 is allowable.

Claims 1-7, 12-32, and 34-35 stand rejected under 35 U.S.C. § 103(a) as obvious over Kobayashi et al. in view of Beaverstock et al. (Office action, p. 3, para. 7). Applicants respectfully traverse the rejection of these claims and request reconsideration.

Each of claims 1-35 recites, *inter alia*, a method or system of using a degradation level of a process entity within a process plant that estimates a level of degradation of the process entity at a first time and compares the estimated level of degradation of the process entity at the first time to a predetermined desired level of degradation of the process entity at the first time. Neither Kobayashi et al. nor Beaverstock et al. discloses this element.

In particular, the Examiner admits that "Kobayashi does not teach comparing the estimated level of the degradation of the process entity at the first time to a predetermined desired level of degradation of the process entity at the first time." Office action, p. 3, para. 7.

Additionally, contrary to the Examiner's contention, Beaverstock et al. does not disclose or suggest comparing an estimated level of degradation of a process entity at a first time to a predetermined desired level of degradation of the process entity at the first time, as explicitly recited by each of claims 1-35. The Examiner correctly admits that Beaverstock et al. describes comparing a calculated level of operation (e.g., instantaneous throughput) calculated at a particular instance of time, to a predetermined target value. (Beaverstock et al., col. 8, ll. 43-63; and Office action, pp. 3-4, para. 7). However, the calculated instantaneous throughput (i.e., level of operation) described in Beaverstock et al. is not an estimated level of degradation of a process entity, as explicitly recited by claims 1-35. While

the specification of the present application indicates that the estimated level of degradation can be derived from parameters or measurements associated with the process entity, it simply does not logically follow that Beaverstock's "level of operation" is a degradation level because Beaverstock's level of operation is also based on measurements associated with the process.

By its plain and ordinary meaning, a level of degradation relates to the amount by which a process entity is degraded because of its use within the process. Generally speaking, the level of degradation increases over time making the process entity less useful or efficient. Nowhere does Beaverstock et al. disclose or even suggest that its "level of operation" is based on or in any manner takes into account the degradation of a process entity, much less that this level of operation estimates such a degradation. To the contrary, the level of operation of Beaverstock et al. can be changed to be increased or decreased by the operator, which means it does not indicate a level of degradation of a process entity which is a function of the use of such an entity within the process. Because Beaverstock et al. does not disclose calculating a level of degradation, it cannot compare an estimated level of degradation with a desired level of degradation (i.e., the limitation found lacking in Kobayashi et al.). It follows therefore that Beaverstock et al. does not provide the missing disclosure or suggestion of Kobayashi et al.

Therefore, Kobayashi et al. and Beaverstock et al., taken alone or in combination, fail to disclose or suggest each and every limitation of claims 1-35. For at least this reason, claims 1-35 are allowable over Kobayashi et al. in view of Beaverstock et al.

Additionally, with regard to claims 1-25, because Beaverstock et al. does not disclose calculating an estimated level of degradation, Beaverstock et al. cannot compare an estimated level of degradation with a desired level of degradation, or alter the operation of the process entity based on such a comparison, as recited by each of claims 1-25. For this additional reason Kobayashi et al. or Beaverstock et al., taken alone or in combination, fail to disclose or suggest each and every limitation of claims 1-25, and claims 1-25 are allowable over Kobayashi et al. in view of Beaverstock et al.

With regard to independent claim 26, the Office action states that Kobayashi et al. does not teach "altering the operation of the process entity based on the comparison step to drive an estimated level of degradation of the process entity at a second time after the first

time to be approximately equal to a predetermined desired level of degradation of the process entity at the second time, wherein the predetermined desired level of degradation of the process entity at the second time is greater than the predetermined desired level of degradation of the process entity at the first time.” (Office action, p. 3, para. 7). Contrary to the statement in the Office action, however, claim 26 does not recite this limitation. Instead claim 26 explicitly recites “using a result of the comparison to produce an index defining a utilization amount of the process entity.” None of the prior art discloses or suggests using a result of a comparison between an estimated level of degradation and a desired level of degradation to produce a utilization index.

While Kobayashi et al. discloses determining a coefficient for indicating “*the degree to which the body thickness is reduced,*” (Office action, p. 10) this coefficient is not a utilization index which is based on the difference between an estimated level of degradation and a desired level of degradation. To the contrary, this coefficient is merely a parameter of a model which is developed based on a comparison of a model output with an actual, measured maintenance result of the equipment. It is not therefore a factor of the difference between an estimated level of degradation and a desired level of degradation. Applicants respectfully submit that comparing a result of a calculated model output with an **actual** measurement to change parameters or coefficients of a model (as described in Kobayashi et al.) is not the same as or similar to using a comparison between an estimated level of degradation and a **desired** level of degradation to produce an index defining a utilization amount of the process entity (as recited by claims 26-35). Accordingly, Kobayashi does not disclose or suggest the claimed combination of elements recited by claims 26-35.

Beaverstock et al. fails to supply the missing element of Kobayashi et al. because, as discussed above, Beaverstock et al. wholly fails to disclose or suggest estimating a level of degradation or comparing the estimated level of degradation with a desired level of degradation, much less creating an index from such an estimate.

Because Kobayashi et al. and Beaverstock et al., taken alone or in combination, fail to disclose or suggest each and every limitation of claims 26-35, claims 26-35 are allowable over Kobayashi et al. in view of Beaverstock et al.

Dependent claims 8-11 and 33 stand finally rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Kobayashi et al. in view of Beaverstock et al. and further in view

of Klimasauskas et al., U.S. Patent No. 5,877,954 (“Klimasauskas et al.”). Applicants respectfully traverse the rejection of these claims and request reconsideration.

As discussed above, Kobayashi et al. and Beaverstock et al. fail to disclose, teach, or suggest each and every limitation of independent claims 1 (from which claims 8-11 depend) and 26 (from which claim 33 depends). Applicants respectfully submit that Klimasauskas et al. does not provide the missing disclosure or suggestion of Kobayashi et al. and Beaverstock et al. In particular, Klimasauskas et al. merely describes a hybrid analyzer for modeling a process, and does not disclose comparing an estimated level of degradation of a process entity to a predetermined desired level of degradation (as recited by claims 1-35), altering the operation of the process entity based on the comparison (as recited by claims 1-25), or using a result of the comparison to produce an index defining a utilization amount of the process entity (as recited by claims 26-35).

Therefore, Kobayashi et al., Beaverstock et al., and Klimasauskas et al., taken alone or in combination fail to disclose or suggest each and every limitation of claims 8-11 and 33. For at least this additional reason, claims 8-11 and 33 are allowable over Kobayashi et al. in view of Beaverstock et al. and further in view of Klimasauskas et al.

It is clear that the cited references must make a suggestion of or provide an incentive for the claimed combination of elements to establish a *prima facie* case of obviousness. See *In re Oetiker*, 24 U.S.P.Q.2d 1443, 1446, (Fed. Cir. 1992); *Ex parte Clapp*, 227 U.S.P.Q. 972, 973 (Bd. Pat. App. 1985). None of the cited references discloses or suggests comparing an estimated level of degradation of a process entity to a predetermined desired level of degradation, as recited by each of claims 1-35. Additionally, none of the cited references discloses or suggests altering the operation of the process entity based on the comparison, as recited by claims 1-25. Still further, none of the cited references discloses or suggests using a result of the comparison to produce an index defining a utilization amount of the process entity, as recited by claims 26-35. As a result, it follows that none of the cited references anticipates any of the pending claims and that no combination of the cited references renders any of the pending claims obvious.

In view of the foregoing, applicants submit that the application as a whole is in condition for allowance and such action is requested at the examiner’s earliest convenience.

Because applicants previously paid for three independent claims and 35 total claims, applicants submit herewith a check in the amount of \$200.00 for the one additional independent claim.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 13-2855, under Order No. 30203/38233. A duplicate copy of this paper is enclosed.

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Respectfully submitted,

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